NORTHERN PLANT NOVELTIES FOR 1938

Dr. N. E. Hansen, Department of Horticulture, State College
Brookings, South Dakota, February 5, 1938

This department does not conduct a commercial nursery, but propagates and distributes new varieties originated in this department or imported from similar climates of the Old World. Many acres of seedling fruits have been grown since the work was started by the writer in 1895. The improvement in size and quality of each plant generation is greater year by year. Hybridization and selection are the main methods of improvement. The work has been honored by four medals and by extensive propagation and planting of many of the new varieties. The medals are: The George Robert White gold medal of honor for "eminent service in horticulture" by the Massachusetts Horticultural Society, 1917; the Marshall P. Wilder silver medal by the American Pomological Society for new fruits, 1929; gold medal for public service by Cosmopolitan club, Sioux Falls, 1933; A. P. Stevenson gold medal for new fruits by the Manitoba Horticultural Society, 1935.

A host of new seedling fruits and roses are coming on, which will be sent out as soon as they are deemed to be up to standard.

Some of the material in this list is offered for distribution to plant breeders to help in the work of improving hardy fruits and roses elsewhere.

New varieties offered for the first time are 22 apples; 1 plum; 1 pear; 1 cherry; 5 golden currants; 4 roses; total 34.

Personal Note: June 30, 1937, I completed forty-two years of service as head of the Department of Horticulture, at South Dakota State College, and became Emeritus Professor of Horticulture in charge of research experiments in breeding of hardy fruits and roses.

North and South Travel: Early in spring of 1937, I began work in Arkansas and worked north with the apple blossoms through Missouri, Iowa and Nebraska; Hot Springs, Sioux Falls, Brookings and Watertown, South Dakota, clear north to Morden and Winnipeg, Manitoba. In the autumn I went to Manitoba to gather the fruits. Thousands of flowers were cross-pollinated and much hybridized seed was obtained. This is an extension of the movable tub orchard method that I began in 1897 and which has been widely adopted in the United States and foreign countries. It makes combinations possible not otherwise possible.

Terms: The money received from the sale of plants makes it possible to do the work on a larger scale than would otherwise be possible. Those who have followed the progress of the work for many years know the importance of ordering promptly, as soon as this list is received, as the supply of plants is limited. Terms are cash with order. No credit except to the Government Experiment Stations. For South Dakota orders add three per cent to the above prices for State Retail Tax.

Red Apples with Red Flowers and Red Flesh

Apples with red flowers, skin and flesh, are a new departure, and will be useful both as an ornamental tree on the lawn and for fancy fruit in the orchard. The fruit is red and is good for red sauce and red jelly.

The first of my Redfleshed apples was the Hopa crab, now a popular ornamental tree. Next came the Redflesh crab, introduced in 1928 and now propagated by many nurserymen. The fruit of Redflesh is about the size of Whitney, brilliant solid red skin and red flesh; excellent for sauce and jelly.

I have been working in this line for many years, especially after my second tour of agricultural exploration to Russia when I met Mr. Niedzwetzky himself at Vernoe, now called Alma Ata in northeast Turkestan, near the Chinese border. Mr. Niedzwetzky, an official in government service, found this remarkable type of apple in the Tian Shan Mountains that separate Russian Turkestan and western China. This type was named in his honor *Pyrus Malus Niedzwetzkyana* after he sent it to Europe. In America, the accepted common name now is the Redvein Crab.

A large number of Redvein crab hybrids with standard apples are now coming on at this Station. These are not old enough to bear fruit but the young wood is red under the knife, and the young leaves are tinted with red, which previous experience indicates that the fruit will be red inside and out, and that the flowers will be red. Nineteen of these new seedlings have been selected and propagated for further trial; the best of these will be named as soon as fruited and deemed worthy.

Sweet Tomatoes: A Report of Progress

Many people add sugar when eating sliced tomatoes to tone down the acidity and improve the quality. It would be desirable to develop special dessert tomatoes that would not need sugar. This thought came to me in a tour to western Europe in 1930 when I noticed that the tomato occupied an honored place as a table fruit as well as a vegetable. I thought it quite possible to take out most or all of the acid and make it really a sweet dessert fruit. About 400 varieties were collected from all parts of the world for a preliminary test. The test began in 1932. The mildest flavored tomato according to my taste was the Primrose Gage, of the Yellow Peach type, found among the ancient Dravidians of southern India. When this pollen is used on Yellow Oxheart, the result is a long peach-skin broadly conical yellow tomato, a new type. The work of fixing this type is not complete, but it should not take long with two crops a year by aid of the greenhouse.

Progress With Hardy Roses

The State Rose Garden is located at Sioux Falls. Here and at Brookings some 20 acres are devoted to originating roses that will be hardy without winter protection, also to originating hardy thornless rose stocks. The Rose Annual of the American Rose Society with several thousand members in America and many foreign lands, emphasized the fact that South Dakota is the first state in the union to have a State Rose Garden.

The progress in Hardy Roses at this station was recognized June 29, 1936, at the annual meeting of the American Rose Society at Des Moines, Iowa, in awarding First Prize to N. E. Hansen for 41 new seedlings. The leading rose in this collection is now named Lillian Gibson.

Lillian Gibson Rose - Pedigree: Wild rose, Rosa blanda, from Wilton, northern Minnesota x Red Star (a red Hybrid Tea) pollen. Offered for the first time. This rose was the sensation at the Sioux Falls Flower Show, June, 1937. The flowers are large, double, over 40 petals, a beautiful lively rose pink, about three inches across with delightful rich fragrance. A very abundant bloomer in late June. Plant of strong upright sturdy growth. The plant is sparsely thorny on young shoots, with scattered thorns on the old shoots. Only 14 own-rooted plants available, price each-$1.00.

100% Thornless Roses

In clearing twenty acres of rose seedlings in 1932 in the State Rose Garden at Sioux Falls and at State College, a few 100 per cent thornless rose plants were selected for further work. Both leaves and wood are smooth. These were introduced in 1936. The flowers are single, pink, fragrant. The abundant red rose-hips in autumn and winter are noteworthy. Plant of sturdy upright habit. These plants are now being crossed with many large double-flowered varieties in other colors. In its present condition it is a pleasing ornamental shrub that will endure 50 below zero Fahrenheit without protection, and which may be found useful by the rose-breeders in eliminating thorns.

It is a pleasure to report further progress with the 100% Thornless Roses noted in S. D. Bulletin No. 309. The flowers are single and pink. In 1937 out of 11053 seedlings of these 100% thornless roses, 613 seedlings or about 5½%, were entirely smooth even the first year from seed. My hope is to make this character come true to seed and that it will be a dominant homozygote in hybridization with standard double roses.

Strong plants of the 100% thornless roses noted in S. D. Bulletin 309, each $1.00.

Three Pax Roses

Three varieties of Pax Roses are offered for the first time: Pax Amanda, Pax Apollo, Pax Iola. Pax is the Latin for peace. Thorns are not necessary in Roses. These Pax Roses are nearly or quite thornless. I hope that eventually Pax will be declared in the Rose gardens of the world!

Pax Amanda Rose - Pedigree: Frau Georg Von Simson (a multiflora climber from Europe) x pollen of Rosa blanda wild rose from Wilton, Minnesota. A gorgeous bloomer, light pink turning to white, semi-double in clusters. Petals about 17. A strong upright grower, with dark brown 7-foot stems. The stems are smooth except a very few thorns near the ground; the midrib of the leaf is bristly. Only 1 plant available. Price $1.00.

Pax Apollo Rose - Pedigree: Rosa sempervirens pallida x pollen of Rosa blanda wild rose from southern Manitoba. A wonderful producer of deep pink flowers in large clusters in June. Petals about 14. Tall, upright, 7-foot dark red stems. The wood is smooth; on strong shoots the midrib of the leaf is bristly. Only 5 own-rooted plants of Pax Apollo rose available for spring. Price each - $1.00.

Pax Iola Rose - Pedigree: Anci Bohm (a climbing rose from Europe) x pollen of Rosa blanda wild rose from Bemidji, north Minnesota. Flowers a semi-double clear shell pink. A strong grower, evidently of the pillar type. The shoots close to the ground also full of bloom. Hybrids of flowers 2½ inches across in large clusters. Petals about 25. The older flowers are nearly white; these two colors make the bush a thing of beauty. The stems of strong growth are all smooth; the rachis or midrib of the leaf is bristly, but a pleasing thornless bouquet can be cut from the side shoots. Only one Pax Iola plant available. Price $1.00.

Hardy Roses Already Introduced

All on their own roots, so that all the sprouts will be true to name. These are my earlier introductions. For descriptions and pedigree, see S. D. Bulletin No. 240. Price per plant - $1.00.

Teton Beauty - - - - - 1 plant
Koza - - - - - - - - - - 2 plants
Zani - - - - - - - - - - 5 plants
Kitana - - - - - - - - -23 plants
Tegala - - - - - - - - -48 plants

Alika: A Hardy Red Red Rose - First offered spring, 1930. Color brilliant red with no purple, mauve or violet red in it. It gets far away from the mauve pink of most of our wild prairie roses. Propagates rapidly from sprouts. I brought this hardy, beautiful, double fragrant brilliant red rose from Russia in 1906, under the name Rosa gallica grandiflora. Described in S. D. Bulletin No. 240. The Alika roses made a gorgeous display in the State Rose Garden at Sioux Falls the past season. Alika roses on own roots, each $1.00. Sprouts from these plants will be true to name.

Mrs. Mina Lindell Rose - Introduced 1927. A beautiful, semi-double light pink wild rose found in Butte County, South Dakota. Described in S. D. Bulletin No. 224. Plants on own roots, each 50 cents.

Pink Semi Rose - A pink single flower selection of the Semi rose from Semipalatinsk, Siberia (Rosa laxa, Retz). See S. D. Bulletin No. 240. It was a pleasure to note at the Federal Horticulture Station at Cheyenne, Wyoming, last summer, that the Pink Semi rose is very resistant or immune to alkali. This variety should be good for hedges on such soil. Own-rooted plants - 4 for $1.00.

Oacoma: A Delicious New Native Plum

Fruit red, round, 1 3/8 inches across, of very best quality eaten fresh or as preserves. Skin thin, dissolves in cooking. The pit is rather small, round, flattened, with smooth rounded edges and no sharp points. The high quality of this pure native South Dakota plum should quickly make it a general favorite. The tree is perfectly hardy and a heavy bearer.

The original tree of Oacoma was found a few miles west of Oacoma in Lyman County and was first sent out as South Dakota No. 12 in 1934. This is now named Oacoma. No matter how many hybrid plums are introduced, I believe that some of the northern pure native plums should be in every orchard to provide abundant pollination of the blossoms. Many people like the stronger flavor of the native plum, especially for preserves and jam. A few scions of Oacoma plum are available for spring, but must be ordered early for spring grafting. Price: 50 cents per foot.

Taming the American Wild Crab

It has been thought by many that it was impossible to improve the American wild crab, but I have been working with this problem many years, and have produced many hybrids. In later years the main attention is given to the Nevis wild crab (introduced 1930), which is Pyrus Ioensis from the farthest northwestern point where it has been found native, Nevis, Minnesota, near the headwaters of the Mississippi River. As far as I can determine, I have done more than anyone else to improve this native American apple. The work has been a great inspiration and pleasure and from now the progress should be very rapid.

Wamdesa Crabapple - Pedigree: Elk River Minnesota wild crab x Jonathan apple pollen. Offered for the first time. Fruit 2 inches in diameter, thin solid red all over; dots large, russet, many areolar; unctuous; basin deep, smooth, abrupt. Flesh juicy acid, acerb, cooks up tender into pleasant light colored, mildly acid and acerb sauce. An all-year keeper. A very heavy bearer. Scions 50 cents per foot.

Wahoya Crabapple - Pedigree: Nevis wild crab x Wolf River apple pollen. Offered for the first time. The Nevis wild crab is Pyrus Ioensis from Nevis, Minnesota near the headwaters of the Mississippi River, the farthest northwest this species has been found. Fruit perhaps the largest of the Nevis hybrids, 2 3/8 x 2½ inches deep, solid red over green. Cavity green out over base. Flesh mild acerb, acid. Cooks up tender into light yellow sauce. Season all winter. Scions 50 cents per foot.

Wakaga Crabapple - Pedigree: Nevis, Minnesota wild crab x Wolf River apple pollen. Offered for the first time. Fruit 2½ x 2 1/8 inches, somewhat cylindrical, unctuous, regular, green, blushed. Flesh acid, mildly acerb, cooks tender. All winter. Scions 50 cents per foot.

Waziya Crab - Pedigree: Nevis Minnesota wild crab x Northwestern Greening pollen. Offered for the first time. Perhaps the largest and best of the Nevis hybrids: fruit oblate, 2 1/8 x 2¼ inches, green, unctuous, and fragrant like the wild crab. The sharp acid fruit does not cook up but has much less wild crab acerbity. Sister to Wecota and Wetonka. An all-year keeper. Scions 50 cents per foot.

Waziya of the early Indians was the spirit of the blizzard as well as of the cool breezes. His home was in the Wind Cave in the Black Hills.

Some New Apples

A host of new apple seedlings are coming forward for attention, in several countries of the world, in the endeavor to obtain varieties better adapted to the local climate. To distinguish these new fruits by numbers is the most convenient method for preliminary trial of large numbers, but for a few seedlings, I prefer names to numbers, even if they are only provisional.

The name South Dakota preceding the numbers in the following list will give the source. The final name can come later, when they have proven of value for general cultivation. Many of these seedlings are only a step in a new direction. They are material for further work by fruit-breeders.

The size of the fruit is given mostly as grown on crowded trees; under orchard conditions the size usually increases from 30 to 50%.

Jonathan apple as a breeder: The Jonathan apple is not hardy at the North, but as it transmits red color and superb quality has been used extensively in these experiments. While the Jonathan has the highest quality, it is not hardy at the North. Perhaps the best we can do is to obtain full Jonathan flavor with a somewhat smaller size of fruit. The future will tell.

Three-fourths Apple; one-fourth Siberian Crab

S. D. Bona Crabapple - Offered for the first time. Pedigree: Jonathan x Silvia crab pollen. A sister to the S. D. Bison. Fruit 1½ inches across, 1¼ inches deep, color an attractive deep rich solid polished red, nearly black red; flesh yellow, rich mild pleasant subacid, cooks easily with red sauce, of very good quality. Late fall or early winter. Tree a heavy bearer. There are several more seedlings of this same pedigree, all of good quality. Scions only 50 cents per foot.

S. D. Ben Crabapple - Offered for the first time. Pedigree: Jonathan x Tony crab. This makes it ½ Jonathan, ¼ baccata, ¼ MacMahon White apple. Fruit 2 inches across, nearly all covered with red, striped and mixed over yellow ground with white bloom. Flesh juicy, pleasant lively subacid, cooks up tender into light red sauce of good quality. Season evidently all winter. Scions only 50 cents per foot.

S. D. Bison Crabapple - The Bison Crab was introduced in 1933. The name is now changed to South Dakota Bison to distinguish it from a Canadian apple seedling. It is large, red, and of excellent quality. Pedigree:: Jonathan apple x Sylvia crab, making it one-half Jonathan apple, one-fourth Siberian crab, Pyrus baccata, and one-fourth Yellow Transparent apple. The tree is a very heavy bearer. Under orchard conditions this may turn out to be almost an apple in size.

One-half Apple; one-half Siberian Crab

In S. D. Macata and S. D. Jonsib, the Siberian crab is the pollen parent. In most of the older hybrids the Siberian crab is the seed parent. I have the theory that larger fruit is to be expected from hybrids with the Siberian crab as the pollen or male parent. Scions 50 cents per foot.

S. D. Macata Crabapple - Offered for the first time. Pedigree: McIntosh x P. baccata pollen. Fruit 1½ inches across. A brilliant polished red all over; flesh rich sub-acid, cooking up tender into a light colored pleasant flavor sauce. Fruit 1½ inches across, 1 1/8 inches deep.

S. D. Jonsib Crabapple - Offered for the first time. Pedigree: Jonathan apple x Irkutsk, Siberia, Pyrus baccata pollen. Fruit 1 3/4 x 1 5/16 inches. A beautiful brilliant rich red, striped, splashed and mixed over yellow ground, with white bloom. An attractive color. Season late fall. Flesh brisk, subacid with sweet aftertaste. In cooking, the sauce is light red, of good flavor, the slices are tender but retain their shape in cooking.

Ten International Apples

This term might be applied to many of my hybrid apples now coming into bearing, because they combine the apples of three continents: Pyrus Ioensis of North America, Pyrus Malus of Europe, and Pyrus baccata of Asia. The plan is to combine the long winter-keeping of the American wild crab with the large good quality fruit of the standard cultivated apple and the winter hardiness of the Siberian crab. The ten varieties here offered for the first time have the group name Trio, indicating 3-species. Scions only. Price: 50 cents per foot.

Ann Trio Crabapple - Pedigree: Tony crab x Mercer crab pollen. A 3-species hybrid of baccata, malus and Ioensis. Fruit $1\frac{1}{2}$ x $1\frac{1}{4}$ inches deep. Remarkable for the bright solid red over orange yellow ground, with white bloom. A very showy fruit, flesh yellow, pleasant acid. Fruit hangs on the tree very late into October and has to be hand-picked. Tree wide spreading, productive. Fruit evidently an all-winter keeper.

Ben Trio Crabapple - Pedigree: Progress crab x Mercer crab pollen. A 3-species hybrid containing $\frac{1}{2}$ Malus, $\frac{1}{4}$ baccata, $\frac{1}{4}$ Ioensis. Fruit $1\frac{1}{2}$ x $1\frac{1}{2}$ inches deep, a dark solid red all over, with many distinct russet dots, flesh sweet subacid, very good quality, sauce light red. Tree a heavy bearer. Season all winter.

Cal Trio Crabapple - Pedigree: Mercer crab x Sweet Russet crab pollen. Fruit, polished bright red all over, $1\frac{1}{2}$ inches across x 1 3/8 inches deep, solid, juicy, sharp acid with sweet aftertaste. Does not cook up but fairly tender, rather neutral flavor. Promising as an all-winter crab.

Dan Trio Crabapple - Pedigree: Pyrus baccata cerasifera x Mercer wild crab pollen. An all-winter crab, perhaps the best out of a lot of same pedigree. A 3-species blend of Ioensis, baccata and malus. Fruit $1\frac{1}{2}$ x $1\frac{1}{4}$ inches deep; solid polished black red, mixed, splashed and mixed, over yellow ground. Flesh very solid, juicy, sharp acid, the sauce is mild neutral with no acerbity.

Erl Trio Crabapple - Pedigree: (Fluke No. 10 x P. baccata) x Dolgo crab pollen. Fruit $1\frac{1}{2}$ inches across, solid dull red over green ground, flesh subacid, juicy. Tree with strong forks, and a heavy cropper. A winter crab.

Kit Trio Crabapple - Pedigree: Mercer wild crab x Sweet Russet pollen. Fruit 1 9/16 x 1 3/8 inches deep, clear light golden yellow, cooks up tender; flesh yellow, sweet. Season all winter.

Joe Trio Crabapple - Pedigree: Pyrus baccata cerasifera x Mercer wild crab pollen. Another 3-species blend. Seedlings from such hybrids should give some highly interesting results. Fruit, 1 3/4 x 1 3/8 inches; oblate, yellow with striped and mixed red. Flesh acid, cooks up into very good quality sauce. Season all-winter.

Fay Trio Crabapple - Pedigree: Fluke No. 10 x Yellow Siberian crab seedling pollen. Another 3-species hybrid, whose seedlings should be of value. Fruit 1 3/8 x $1\frac{1}{4}$ inches deep, yellow with dull red cheek, striped and mixed. Flesh solid, juicy, acid; sauce of light color, and good quality. A long winter keeper.

Hans Trio Crabapple - Pedigree: Fluke # 28 x Yellow Siberian crab seedling pollen. Another 3-species hybrid. Fruit green oblate 1 3/4 inches across, green covered with dull mixed red, flesh juicy, tough, pleasant subacid; does not cook up but flesh is neutral, not acerb. Season all winter.

Guy Trio Crabapple - Pedigree: (Fluke No. 10 x Pyrus baccata) x Dolgo crab pollen. Fruit a solid red over green, cylindrical, $1\frac{1}{2}$ inches across. This is about 25% Pyrus baccata, 62.5% Malus, 12.5% Ioensis. Flesh white, subacid, red next to skin. Remains firm in cooking but not acerb. Evidently an all-winter keeper.

Apple x Wild Crab

These four hybrids are a blend of the standard apple (Pyrus Malus) with the wild crab (Pyrus Ioensis).

S. D. Waldo Crabapple - Pedigree: Fluke No. 10 x Duchess apple pollen. Offered for the first time. Tree a heavy bearer but greatly crowded in seedling row. Fruit $1\frac{1}{2}$ inches across, deep solid red mixed and striped over yellow ground. Flesh tender, juicy, pleasant, subacid; cooks up into light red sauce of very good quality, season probably winter. This seedling is 7/8 Malus, 1/8 Ioensis, but still the calyx tube is cylindrical and the stamens marginal, showing the influence of Ioensis. Scions 50 cents per foot.

S. D. Wendel Crabapple - Pedigree: Charlamovsky apple x pollen of a large wild crab from Andrew County, Missouri. Offered for the first time. Fruit 1½ x 1 5/16 inches deep; a brilliant solid bright red all over yellow ground; flesh firm, juicy, charp clear acid, not acerb, cooks into red sauce of neutral flavor. Evidently a long winter keeper. Scions 50 cents per foot.

Waubay Crabapple - Introduced 1933. Pedigree: Grimes Golden apple x Mercer Unguarded wild crabapple. The first fruits 1¼ inches in diameter, round conical, brilliant red, evidently a remarkable all-winter keeper. The Waubay evidently combines the rich, spicy, subacid sweet of the Grimes Golden with the long keeping capacity and hardiness of the seedling of the Mercer wild crab. In 1937 Waubay fruit was 1 5/8 inches across, flesh firm, solid, sweet, cooking into pleasant sweet sauce. An all-winter crab. A good blend of standard apple and American wild crab. Scions 50 cents per foot.

Wakpala Apple - Introduced 1928. Pedigree: Mercer crab x Tolman Sweet apple pollen. Fruit 2 1/8 inches in diameter, yellow striped with red, flavor subacid with spicy sweet fragrance. Cooks up quickly into excellent sauce. Season, winter. Price: One year grafts on Siberian crab stock, each $1.00.

Natural Hybrids of Wild Crab and Apple

These large-fruited American wild crabs are usually classified as Pyrus Soulardi, and are regarded by botanists as natural hybrids of Pyrus Ioensis and Pyrus Malus. Scions, 50 cents per foot.

Forest King Crabapple - A wild crab from northern Illinois. Tree had a heavy crop in 1937 following the drouth year 1936. Fruit green, 2 3/8 inches across, 2¼ inches deep, weight 5¼ ounces. Useful for hybridizing. Offered for the first time in these lists. The Forest King should be in the collection along with Mercer, Missouri, Giant, and other large crabs. Each $1.00.

Mercer Crabapple - Found growing wild near Sherrard, Mercer County, Illinois, about 50 years ago. Described in S. D. Bulletin 224. Fruit up to 2 and 5/8 inches in diameter. My Anoka apple, noted as the earliest bearing apple in the world, came from seed of the Mercer. Available stock, 32 one-year grafts on Siberian crab stock, each $1.00.

Missouri Crabapple - Found about 50 years ago near Kansas City, Missouri. Described in S. D. Bulletin 224. Fruit roundish, 2½ inches in diameter, truncated, regular, rich golden yellow all over. Its native acerbity is considerably toned down, but it is still a wild crab. Worthy of preservation as a curiosity and as a basis for further work. Available stock, 13 one-year grafts, each $1.00.

George Miller Crabapple - Offered for the first time. Found by George Miller, near his home at Muscatine, Iowa. Not yet fruited at Brookings. A few one-year grafts, each - $1.00.

Cooking Test of Frozen Wild Crabs - Hundreds of cooking tests have been made of wild crabapples in the course of these experiments. About two bushels of the Forest King had been left to freeze solid in an outdoor cellar, to be seeded and stratified as other work permitted. These frozen fruits were always discarded after seeding. But in experimental work it is sometimes best to see what is on the other side of the hill, so last week, January 18, a cooking test was made of these frozen crabs. The acerbity was greatly modified and reduced, and the slices were tender and kept their shape, instead of breaking down into a mush. The sauce was of quite acceptable quality. Further tests, I hope, will show that these wild American crabs can be frozen solid and used as needed for cooking all winter. The early Indians preserved the fruit in caches in the ground over winter. It was the only apple the Indians knew before the white man brought the standard apple from Europe.

The fruit of these wild crabs easily keeps a year in a common cellar. One of my hybrids, the Chinook, was picked September 3, 1927, was kept in an outdoor cellar and kept until May 14, 1929, a period of 20 months and 11 days. The fruit was still in good condition and when cooked made a good pleasant flavored sauce.

Root-grafts of Wild Crabapples

Experimenters with the indigenous American wild crabapples Pyrus Ioensis, will be interested in the following list, all 1 and 2 year root-grafts. For descriptions, see S. D. Bulletin 224 and 309. Number available at 50 cents per tree: Wanblee 7; Forest King 1; Chinook 7; Caputa Crab 7; Kola 10; Izo Crab 5; Amsib Crab 2; Wakonda 1.

Forest King, Izo and Wakonda crab are on apple stock, the others on Siberian crab stock.

[illegible]

[illegible] ... stock ... [illegible]

[illegible]

[illegible] Hybrids of Wild Grapes

These [illegible] ... natural hybrids ... [illegible]

Larger Kinds of Grapes - will ... [illegible] ... inches long, weight 6½ ounces. ... in these lists. The famous King ... Missouri, Ill., and other large grapes ... [illegible]

[illegible] - ... about 6 ... Bulletin 284 ... in Missouri ... from seed of ... Available ... each $1.00.

[illegible] - ... cribed in C. ... Bulletin 284. Fruit ... ular, rich ... but is still a wild grape. Worthy of ... for further work. Available stock, ... each $1.00.

George Miller Seedling - ... near his home ... Not yet fruited ... grafts, each $1.00.

[illegible] - ... wild ... in the course of ... King ... freeze ... as other ... But in experiments ... hill, ... recently ... 14. Further ... soil ... Fruit ... [illegible]

[illegible]

[illegible] of Wild [illegible]

[illegible] ... King 1, ... [illegible]

[illegible]

s. 17.

One-half Wild Crab; one-half Siberian Crab

This combination combines extreme hardiness with all-winter keeping, but the wild crab dominates in quality. More work should be done.

Amsib Crab - Introduced 1932. Female parent: Wild Red, a form of Pyrus Ioensis from Iowa. Male parent: a Pyrus baccata brought by N. E. Hansen from Moscow, Russia, in 1906. The name "Amsib" is condensed from the names America and Siberia. A good sized crab, about 1 3/4 inches in diameter, green and yellow, keeps all winter, with fragrant wild crab flesh but neutral rather than bitter. It is only an ornamental tree at present, but it is the first hybrid of the indigenous American apple with the Siberian crab and has possibilities for the future. Scions, 50 cents per foot.

A Siberian Crab With Smooth Basin

Beauty Crab - Introduced in 1919. Seedling of Pyrus baccata cerasifera raised here from seed received from the Botanical Gardens at Leningrad. Fruit a brilliant solid cherry red with orange red underneath; calyx segments deciduous with no opening into the core at the basin or blossom end. A tree of Beauty crab or Siberian crab stock bore ten bushels one year here at Brookings. Tree 100% hardy at Morden, Manitoba. Many seeds from a bushel of fruit; the resulting seedlings are excellent for budding and grafting. The trees are ornamental also. Scions of Beauty crab, 25 cents per foot.

New or Rare Apples

The following are available as 1 or 2 year root-grafts on Siberian crab stocks. See descriptions in S. D. Bulletin 224 and 309. Number available at 25 cents each: Bison crab 5; Yellow Sweet apple 20; Zelma crab 5; Caramel apple 18; Olga crab 88; Goldo apple 101; New Duchess apple from Ivan V. Michurin (Soviet Union) Russia, 30.

Root-grafts of New Pears

The following are one-year old root-grafts on commercial Pyrus Ussuriensis stocks: Price 25 cents each.

Harbin pear	353
Russian Sand pear	26
Ming pear	39
Sladky pear	3
Sadko pear	3
Finland pear	4
Krylov pear	18
Pyrus ovoidea (Simoni)	4
Seedlings of Chang pear (S. D. Bulletin 224) top-grafted on Pushkin pear from fruit grown in the John Robertson orchard, Hot Springs, South Dakota. Price each 25 cents.	115

As discussed in S. D. Bulletin 224, commercial Pyrus Ussuriensis stocks are not hardy enough at this station but are hardy further south; at the North careful mulching would be necessary. By planting deep enough, the hardy top would soon be on its own roots.

S. D. Valya Pear - Offered for the first time. Pedigree: Lincoln pear x Russian Sand pear pollen. The reciprocal hybrid of the Sladky, introduced in 1933. Fruit nearly two inches across, round tapering to stem, yellow with minute russet dots. Good quality. A good tree, no blight, bore a heavy crop in the drouth year 1936. Scions, 50 cents per foot.

Pear Stock Experiments

Dwarf pears are on quince stocks and are widely grown in pear-growing regions wherever the quince stock is hardy. This is because they bear very much earlier than standard pears, which are pears on pear stocks. This subject was discussed in my paper "Fruit Stocks Where the Mercury Freezes", at the Ninth International Horticultural Congress in London, August 1930. In this paper I suggested the use of Cotoneaster acutifolia, a choice Siberian ornamental shrub used for hedges and in the border, as a dwarf stock for pears. For spring 1938 permanent planting, a few Harbin pears budded on Cotoneaster acutifolia stocks can be spared for trial elsewhere, dwarf trees 2 to 4 feet in height. Price per tree, 50 cents. The trees are greatly dwarfed and should bear very early, provided the root proves strong enough to sustain the pear top.

Pears on Apple Stock

Some pear trees on apple stock can be spared for trial. The root-grafts are one year old. The strong tendency of the pear is to emit roots above graft; this would be highly desirable as the roots would be hardy. Price of the following pear on apple stock, each 25 cents.

Harbin pear piece root-grafted on common apple - - - 120
Harbin pear piece root-grafted on seedlings of
Hopa crabapple - 235
Harbin pear piece-root-grafted on Pyrus baccata - - - 11
Harbin pear piece-root-grafted on seedling of
Cathay crab - 54

Large Trees of Harbin Pear

The Harbin pear (see S. D. Bulletin 224) are seedlings of Pyrus Ussuriensis from the northwestern limit of the species a few miles east of Harbin, a 50 degree below zero region in Manchuria, now Manchukuo. These trees appear resistant to the fire blight so destructive to most pears. Some stocky older transplanted trees of Harbin pear can be spared. They are thinned out of the older plantations. They must be dug with a spade, so are priced at $2.00 each.

Ural Mountain Cherry

Offered for the first time. In the Ural Mountain region of West Siberia, a dwarf red cherry is being collected in a large way under government auspices. Selection is under way at the Experiment Station at Cheliabinsk as I noted in my 1934 tour to Siberia. I saw one just brought in nearly as large as the Early Richmond Cherry. The fruit is a red sour cherry of good quality, but smaller than the standard sour cherries. The plant sprouts freely. The past season the ural cherry was budded on Sandcherry to prevent sprouting. If this succeeds, it means solving the problem of a hardy sour cherry for the northern prairies. The botanical name is Prunus fruticosa, Pall. A few scions of Ural Mountain Cherry, each 25 cents.

The Hansen Bush Cherry

This is the result of over 40 years of selection of the Sand cherry, (Prunus Besseyi), a favorite fruit of the Indians in western South Dakota. I am now well along on the second million seedlings. In the present plantation of 35 acres of Hansen Bush cherries in the State orchard, I hope to find a lot of choice seedlings. Seedlings of the thirteenth generation selected seedlings are set with fruit buds to produce the fourteenth generation. In the later selections the size of the pit has been decreased greatly, the size of the fruit increased, and the quality improved. All of them make a sauce of good quality. In the 1937 list, nine of these Hansen Bush cherries were named and distributed. Descriptions of these may be found in S. D. Bulletin 309. Transplants of these nine varieties, budded on native plum, can be spared at $1.00 per plant. Seedlings of Hansen Bush Cherry-12 for $3.00.

Progress with the Golden Currant

The Golden Currant (Ribes odoratum, Wendl.) is a handsome shrub of vigorous growth, with abundant yellow flowers appearing in early spring before the leaves. It is a choice ornamental shrub due to the rich spicy fragrance of the flowers, and smooth green leaves. The fruit is smooth and of excellent quality eaten fresh or for preserves. The color is usually a shining black, but in western South Dakota, often plants with yellow fruit are found. The names given are all from the Sioux Indian language.

Price: Of the following five varieties offered this year cuttings only are available. Price: 3 cuttings for 50 cents, 7 for $1.00.

Wapago Golden Currant - Offered for the first time. My best selection so far of the Golden Currant as found native at Cottonwood, western South Dakota. The rich spicy fragrance of the abundant yellow flowers and the smooth green leaves, add to the value of this strong-growing, drouth-resistant native shrub. A combination ornamental and fruit-bearing shrub. The fruit is three-fourths of an inch across, skin shining black, pleasant acid. A heavy crop on crowded bushes in 1937, following the dry season 1936.

Wakapa Golden Currant - Offered for the first time. Grown from native golden currants gathered at Cottonwood, South Dakota. Fruit yellow, pleasant subacid, 5/8 inches across. A heavy bearer.

Wato Golden Currant - Offered for the first time. Fruit pleasant, mild, acid, 9/16 inch across, light orange yellow. Skin transparent, shining. Grown from native golden currants gathered at Deadwood, South Dakota.

Woga Golden Currant - Offered for the first time. A heavy crop in 1937 of yellow shining fruit, 5/8 inch across, pleasant acid. Descended from native golden currants gathered at Cottonwood, South Dakota.

Pawnee Golden Currant - Offered for the first time. The shining black fruit is 3/4 inch across, good quality. The shrub is of strong growth and a heavy bearer. Pedigree: The fourth generation from the Crandall grown among many native South Dakota seedlings of Golden Currant.

Twelve Hardy Apricots

Described in last spring's list, also in S. D. Bulletin 309 which is sent free to applicants. These apricots were grown from native seed that I gathered in the Harbin region of North China. A region with -50° Fahrenheit winter cold. These 12 Manchu apricots were widely distributed, literally from coast to coast, and are in extensive propagation by western nurserymen. There is a vast market open to good hardy apricots. There are only 4 trees available of the the Sino, which are reserved to make up complete sets. Of the other 11 varieties, one year trees, buds or grafts on native plum stock, are available at the same price as last year, one dollar each. Order as early as possible to get the varieties you want, or leave the choice to me.

Hardy Grapes

Grapes hardy without winter protection are greatly needed in the prairie Northwest. In South Dakota Experiment Station Bulletin No. 224 is listed the 32 varieties of such grapes introduced in 1925. They are for regions where the standard grapes are not hardy. Four of these are offered in the following list as strong transplanted vines. Price, each one dollar.

Note: The North Dakota wild grape in the following list was collected at Bismarck, North Dakota.

Grape Vines

Mandan Grape - Pedigree: Wilder x North Dakota wild. An early and very heavy bearer, the first of all of these hybrids to bear. Fruit black, one-half inch in diameter; good flavor. Seeds separate very readily from the flesh. Number of vines available - 14.

Siposka Grape - Pedigree: Lady x North Dakota wild. Large, black grape; five-eigths inch in diameter. Number of vines available - 11.

Azita Grape - Pedigree: Beta x North Dakota wild. Sweet, medium, five-eighths inch in diameter; flavor rather wild; strong growth, fair crop. Number of vines available - 26.

Shakoka Grape - Pedigree: Lady x North Dakota wild. Fruit very large, round, nearly black, nearly Concord size. Good quality. Seeds separate readily from the pulp. Vine, a very strong grower and very heavy bearer. Number of vines available-2.

A Hardy Perennial Vetch

In 1913, I found this blue flowered vetch growing on the dry plains at Semipalatinsk, Siberia, a region with only 8 inches rainfall, and with temperature ranging from 51° below zero Fahrenheit to 106° above. Here at Brookings, it crowds out Iris and other plants in the flower garden and makes a dense growth of foliage every year. It is a perennial forage plant worthy of trial. Price: 10 plants for 50 cents.

Earlier Peonies

The Peony is our best perennial flower. I have seen it growing wild in many places in East Siberia. In the hope of adding a month to the front end of the peony season, I have grown several thousand peony seedlings in the course of many years. My plan is to hybridize the standard peony varieties with imported early blooming primitive species. Some 400 seedlings were selected the past season for further trial. Some of them are extremely early, others intermediate in season. The earliest of these new peonies may be single flowered, and hence are more for landscape effect: The doubles may be later. The coming season I hope to determine definitely the relative blooming dates of all these new seedling peonies.